

Remarks/Arguments

This is a complete response to the Office Action mailed on 17 March 2008 (*Office Action*) in which claims 1-16 were rejected. Claims 1 and 3 are currently amended. Claims 10-16 have been canceled. New claims 17-26 have been added. Reconsideration and continued examination of claims 1-9 and 17-26 of the subject application are respectfully requested.

Support for Amendments

Claim 1 has been amended to add the limitation that the translucent chemical layer is provided on the flexibly suspended first surface *outside of the gap* of the Fabry-Perot cavity. Support for this new limitation can be found in Figures 1A and 1B of the specification showing a chemical layer 34 on a first surface 16 that is outside of the gap 14. To improve the readability of claim 1, the phrase: "said sensing condition wherein said agent undergoes said reaction with said chemical layer" has been amended to read "said sensing environment." Likewise, the phrase: "said sensing condition wherein said reaction does not occur" has been replaced with "said reference environment." Claim 3 has been amended in a similar manner.

Support for New Claims

New claims 17-26 recite all the limitations of claims 1-9 in apparatus form as discussed throughout the specification and shown in Fig. 1A. Thus, claims 17-26 do not introduce any new material.

Objection to the Disclosure

The disclosure of the current application was objected to for not having updated related application information. The specification has been amended to update the status of the related applications.

35 USC § 103(a) Rejection

Claims 1-16 have been rejected as being unpatentable over U.S. patent 6,649,403 issued to McDevitt et al. (*McDevitt*) in view of U.S. patent 5,867,267 issued to Benech et al. (*Benech*), a Nature 2000 paper entitled "A Colorimetric Sensor Array for Odour Visualization" by Rakow et al. (*Rakow*), and an IEEE paper entitled "Micromechanical Optoelectronic Switch and Amplifier (MIMOSA)" by Waters et al. (*Waters*). As claims 10-16 have been canceled, the rejection against them is considered moot. Applicants respectfully request reconsideration of amended claims 1-9 because (I) not all the elements of the amended claims are found expressly or inherently in the combination of cited references, (II) no one with ordinary skill in the art at the time of the invention would have a reason to combine the cited references in the manner suggested by the *Office Action*, and (III) any one with ordinary skill in the art at the time of the invention would not reasonably expect such a combination to succeed. Consideration of new claims 17-26 is also respectfully requested.

I. Not All Elements Taught

There is not enough factual support to uphold a 103 rejection of amended claims 1-9 because not all the claimed limitations are shown in the cited references. Independent claims 1 and 3 each now include the limitation that the translucent chemical layer is provided on the flexibly suspended first surface *outside of the gap*. *McDevitt*, teaches coating the *inside surfaces* of a Fabry-Perot cavity with a sensing substrate. (*McDevitt* col. 16, lines 36-59; Fig. 4E) The placement of the chemical layer on the inside or on the outside of a Fabry-Perot cavity will yield very different results. Having the chemical layer on an outside surface of a Fabry-Perot cavity as claimed does not change the optical properties of the Fabry-Perot cavity unlike *McDevitt's* device where the presence of the sensing substrate inside *McDevitt's* Fabry-Perot cavity changes the

Inventor: Hutchens

optical properties of the cavity. For this reason, Applicants respectfully request withdrawal of the 103 rejection of claims 1-9.

II. No Reason to Combine.

Claim 1 of the present application discloses a method wherein a first surface is “flexibly suspended adjacent and parallel to a second surface” such that the gap between the first and second surfaces is adjustable due to a variable electrostatic potential. The Examiner has stated that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the Fabry-Perot cavity of [McDevitt] using a process and structure as taught by [Waters] because of the sensitivity of the device as taught by [Waters].” (*Office Action* page 5) However, Applicants respectfully submit that, at the time of the invention, no one with ordinary skill in the art would be compelled to make such a combination because it was thought by those with skill in the art that the deposition of a sensing substrate on an inner surface of a Fabry-Perot cavity (as taught by *McDevitt*) could induce stress on an upper surface of the cavity that could lead to the surfaces of the Fabry-Perot cavity sticking together. Adding a flexibly-suspended surface from *Waters* to the Fabry-Perot cavity of *McDevitt* would only exacerbate the sticking problem. *McDevitt teaches away* from having a flexibly suspended first surface as claimed in claim 1 of the current application because *McDevitt* proposes adding structural supports to keep the cavity surfaces from flexing. Please consider the following passage from *McDevitt*:

In some instances, the sensing substrate, when deposited within a cavity of a Fabry-Perot type detector, may cause stress in the top diaphragm of the detector. It is believed that when a sensing polymer coats a planar top diaphragm, extra residual stress on the top diaphragm causes the diaphragm to become deflected toward the bottom diaphragm. If the deflection becomes to [sic] severe, sticking between the top and bottom diaphragms may occur. In one embodiment, this stress may be relieved by

*the use of **supporting members** 292 formed within the cavity 286, as depicted in FIG. 4F. (McDevitt col. 16, lines 60-67, col. 17, lines 1-2)(emphasis added)*

If *McDevitt* was concerned that the mere coating of the fixed inner surfaces of a Fabry-Perot type detector would cause deflection, how much greater would be that deflection if one of the surfaces were hinged/flexible as taught in *Waters*! For these reasons, Applicants respectfully submit that no one with skill in the art at the time of the invention would have any reason to combine the references as suggested.

III. No Reasonable Expectation of Success.

No one with reasonable skill in the art would combine the cited references in the manner proposed by the Examiner because such a combination would have led to conditions considered problematic at the time of the invention. As explained above, coating the inner surfaces of a Fabry-Perot type detector was thought to lead to sticking. Having a flexible/hinged, coated inner surface would merely exacerbate the sticking problem. Accordingly, there would be no reasonable expectation that the combination, as suggested by the Examiner, would succeed.

Conclusion

For the reasons stated above, Applicants respectfully request withdrawal of the rejection of claims 1-16. Applicants respectfully submit that claims 1-9 and 17-26 of the present application are in condition for allowance. The USPTO is hereby authorized to charge Deposit Account No. 50-0847 an amount of \$120.00 to pay the fees for an extension of time into the 1st month per 37 CFR 1.17(a). Please charge any deficit or credit any excess to Deposit Account No. 50-0847.

Respectfully Submitted,

Application No. 10/763,133
Inventor: Hutchens

Navy Case # 84715

/J. Eric Anderson/

J. Eric Anderson

Reg. No. 58706

Tel.: (619) 553-3001